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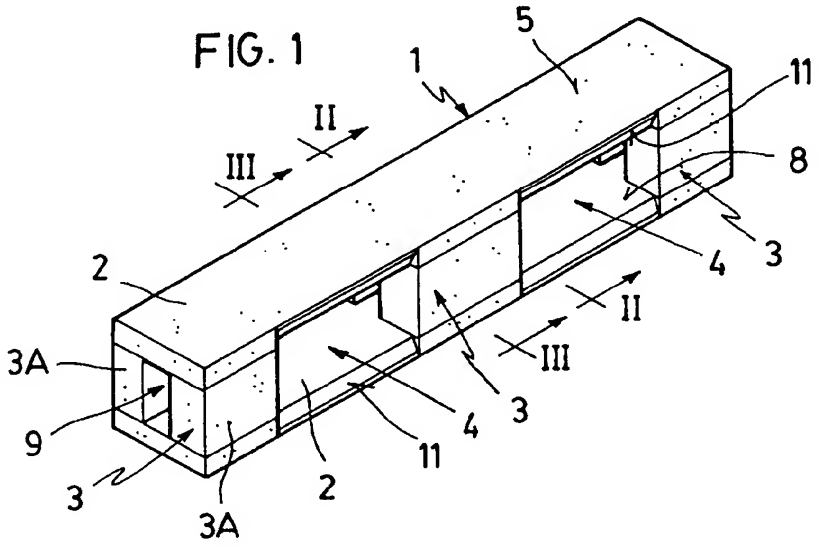
(54) Palletisation device

(57) The invention relates to a palletisation device which facilitates direct palletisation of stacked elongated prismatic bodies and which consists in an elongated strong body (1) which, with respect to its entire length and oppositely parallel, has two flat bearing surfaces (5) and, between said flat surfaces (5), has at least two through holes (4) in transverse direction and a passage (9) in longitudinal direction. Said through holes (4) are distanced such as to be compatible with the width of the fork of a fork lift truck. The strong body (1) is constituted by two laths (2) superposed in parallel and connected by their facing faces (8) by means of spacers (3) of which two are at the ends and a third is central. The device according to the invention may also comprise an auxiliary member for joint palletisation of two series of stacked bodies.

FIG. 1



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Description

Field of the invention

[0001] This invention relates to a palletisation device, and concretely to a device which facilitates direct palletisation of elongated prismatic bodies, as long as such are able to be arranged stably in stacked series and the elevation of the whole is rectangular, without excluding the application of the device to conventional palletisation of such or other bodies with packaging which, furthermore, may be applicable should the bodies to be palletised be situated on unfooted load platforms, which are substituted by the present device.

State of the art

[0002] In transporting elongated bodies of from two to five metres, such as for example the boxes which contain synthetic plastic profiles, packets of metallic profiles, wood planks and panels, etc., one confronts the drawback that conventional pallets or platforms which are used in goods palletisation systems are not suitable.

[0003] Conventional pallets used in systems of goods transport by palletisation normally comprise a platform and feet which separate the platform from the ground sufficiently to allow the passage of the forks of a fork lift truck.

[0004] Since such pallets are standardised, they have a size which is not suitable for containing elongated bodies which significantly exceed their dimensions and furthermore, in many cases, such pallets are uniquely accessible to the fork of the fork lift truck from only one of their sides.

[0005] It would therefore be desirable to have a pallet arrangement which would allow, not only the palletisation of the above mentioned elongated bodies, but which would also allow access to the fork of the fork lift truck by any of its two plane dimensions.

Summary of the invention

[0006] Since such elongated bodies are in all cases substantially rigid as regards flexion, the solution adopted is that it is the ensemble of such bodies, constituting a freight unit, which should have the means allowing the ensemble to be handled as if it were a conventional pallet.

[0007] In accordance with the above solution, the palletisation device which is the subject of the present invention has been developed, essentially consisting in an elongated strong body which, with respect to its entire length and oppositely parallel, has two flat bearing surfaces and, between said flat surfaces, has at least two through holes in transverse direction and a passage in longitudinal direction, which crosses said through holes and opens into them.

[0008] Preferably, the strong body, in one respect, has a longitude which is substantially equal to the width of the vertical projection of the ensemble of stacked bodies and, in another respect, has its through holes distanced such as to be compatible with the width of the fork of a fork lift truck.

[0009] A feature of the invention, according to a preferable embodiment of such, consists in the fact that the palletisation device is constituted by the association of two parallel superposed laths which are connected by their facing faces by means of spacers of which at least two are at the ends and a third is central.

[0010] Other preferable features of the invention, which are related with the previous preferable embodiment, consist in the fact that in the strong body each of the spacers is constituted according to one of the following arrangements:

a.- consisting in two parallelepipedic parts which, facing each other, constitute a passage in the longitudinal direction of the strong body and are solidly joined to the inner facing faces of the two superposed laths by two of their opposite edges.

b.- consisting in solid chocks which have a dimension equal to the width of said laths and a slot in the longitudinal direction of the strong body which is covered longitudinally by application against the upper lath.

[0011] Another preferable feature of the invention consists in an auxiliary member of the palletisation device which, in the event of joint palletisation of two series of stacked bodies, comprises an auxiliary member which is formed by an elongated profile with two flat parallel opposite faces which, having a longitude which is equal to that of the strong body, have longitudinally in each of said flat faces a marginal slot, said marginal slots being arranged such that the slot of one face does not correspond with the slot of the other face. Finally, another preferable feature consists in that the edges of the two laths, in the zone of said laths which coincides with the through holes, are chamfered.

Brief description of the drawings

[0012] To facilitate understanding of the above ideas, a preferred embodiment of the invention is described below, with reference to the appended illustrative drawings, in which:

Figure 1, represents, in perspective, the palletisation device of the invention according to one of the possible preferable embodiments;

Figure 2, represents a section along line II - II of figure 1, in which the detail of an embodiment of the spacers is shown;

Figure 3, represents a cross section along line III - III of figure 1, in which the spacer of the previous figure is shown in cross section;

Figure 4, represents, in cross section, an embodiment of a spacer in which said spacer consists of a solid body having a longitudinal slot;
Figure 5, represents, in perspective, an ensemble of elongated palletised bodies on two devices according to the invention;
Figure 6, represents, in perspective, a fragment of an auxiliary member for palletisation of independent groups of elongated bodies;
Figure 7, represents, in lateral elevation, a pallet which comprises two groups of elongated bodies separated by two auxiliary members and three palletisation devices such as that of figure 1;
Figure 8, represents, in front elevation, the pallet of the previous figure; and
Figure 9, diagrammatically represents the base of the pallet of figures 7 and 8, showing the possibility of accessing the pallet with the fork of the fork lift truck with respect to two orthogonal directions.

Detailed description of some embodiments of the invention

[0013] A preferable embodiment of the palletisation device according to the invention consists, as shown in figure 1, in a strong body 1 which is constituted by the association of two laths 2, which are arranged superposed in parallel and are connected by three spacers 3 which define through holes 4 in transverse direction.

[0014] The laths 2 have outer faces 5 which constitute the two flat bearing surfaces of the strong body 1, the upper surface being destined to receive the load of elongated bodies 6 and the lower for repose on the ground 7, as can be seen in figures 5 to 8.

[0015] Furthermore, said laths 2 have their inner faces 8 facing each other and solidly connected by the spacers 3 of which, preferably, there are three arranged so that one is central and the others are at the ends, defining between them said through holes 4.

[0016] The spacers 3 can be constituted, as shown in figures 1, 2, 3 and 5 by two parallelepipedic parts which in this case are two equal plates 3A that, facing each other, leave a passage space 9 in longitudinal direction limited by the inner faces 8 of said laths 2 and the inner faces of the plates 3A themselves, or further, as shown in figures 4, 7, 8 and 9, by simple chocks 3B provided with a slot 10 which runs longitudinally, and is closed by the inner face 8 of the upper of the laths 2 and which opens into the through holes 4.

[0017] The laths 2, at least as regards the edges of the same which adjoin the through holes 4, have their inner edge 11 chamfered in order to facilitate the introduction of the forks 12 of the fork lift truck 13.

[0018] Should the number of stacked elongated bodies 6 be very high, or should it be advantageous to unload them separately at different destinations, there is provided an auxiliary member 14, which is interposed between the groups of elongated bodies 6 which one wishes to separate and which is constituted, as shown in figure 6, by an elongated profile 15 with two flat opposite parallel faces 16 which, having a longitude in use which is equal to that of the strong body 1, has longitudinally in each of its flat faces 16 a marginal slot 17 arranged so that the projection of one of said slots of one face onto the other flat face 16 will not coincide with the slot 17 which is in the latter flat face 16.

[0019] The strong body 1, shall in principle be manufactured with wooden laths 2, plates 3A and chocks 3B, as well as the elongated profile 15 of the auxiliary member 14, although the use of other materials is not excluded.

[0020] As can be observed in figure 5, the elongated bodies 6 are placed in a first layer on two or three strong bodies 1, after which more of said elongated bodies are stacked until the height desired for the pallet is reached, at which stage the banding straps 18 are attached after having been passed through the passage spaces 9 in the spacers 3 or through the slots 10 in the same, depending on the type of such.

[0021] Should, as shown in figures 7 and 8, one wish to arrange the elongated bodies 6 in two groupings, either for reasons of stability of the ensemble, or because the upper ensemble is routed to a prior destination than that of the lower ensemble, auxiliary members 14 are placed between both groupings, each of the two groups being banded separately and the two groups being banded together.

[0022] In all cases, as shown in figure 9, the forks 12 of the fork lift truck 13 can access the pallet by two access spaces 19 and 20, the first being formed between each two strong bodies 1 and the second being formed between each two spacers 3 and defined by the through holes 4.

[0023] Obviously, the distance between the strong bodies 1 in a same pallet will be determined by the length of the elongated bodies 6 and by the resistance to flexion of the ensemble of such. If it should be necessary, it is not excluded that a platform be arranged between the strong bodies 1.

Claims

1. Palletisation device **characterised in** consisting of an elongated strong body (1) which, with respect to its entire length and oppositely parallel, has two flat bearing surfaces (5) and, between said flat surfaces (5), has at least two through holes (4) in transverse direction and a passage (9) in longitudinal direction which crosses said through holes (4) and opens into such.

2. Palletisation device according to claim 1, **characterised in that** said through holes (4) are distanced such as to be compatible with the width of the fork of a fork lift truck.

3. Palletisation device according to claims 1 or 2, **characterised in that** the strong body (1) is constituted by the association of two laths (2) superposed in parallel and connected by their facing faces (8) by means of spacers (3) of which two are at the ends and a third is central.

4. Palletisation device according to claim 3, **characterised in that** in the strong body (1) each of the spacers (3) is constituted by two parallelepipedic parts (3A) which, facing each other, constitute said passage (9) in longitudinal direction of the strong body (1) and are solidly joined to the inner facing faces (8) of the two laths (2) superposed by two of their opposite edges.

5. Palletisation device according to claim 3, **characterised in that** the spacers (3) of the bearing laths (2) of the strong body (1) are constituted by solid chocks (3B) which have a dimension equal to the width of said laths (2) and a slot (10) in the longitudinal direction of the strong body (1) which is covered longitudinally by application against the upper lath (2).

6. Palletisation device according to any of claims 1 to 5, **characterised in that**, in the event of joint palletisation of two series of stacked bodies, it comprises an auxiliary member (14) which is formed by an elongated profile (15) with two flat parallel opposite faces (16) which, having a length equal to that of the strong body (1), have longitudinally in each of said flat faces (16) a marginal slot (17) said marginal slots (17) being arranged so that the slot of one face does not correspond with the slot of the other face.

7. Palletisation device according to any of claims 3 to 6, **characterised in that** the edges (11) of the two laths (2), in the area of such which coincides with said through holes (4), are chamfered.

FIG. 1

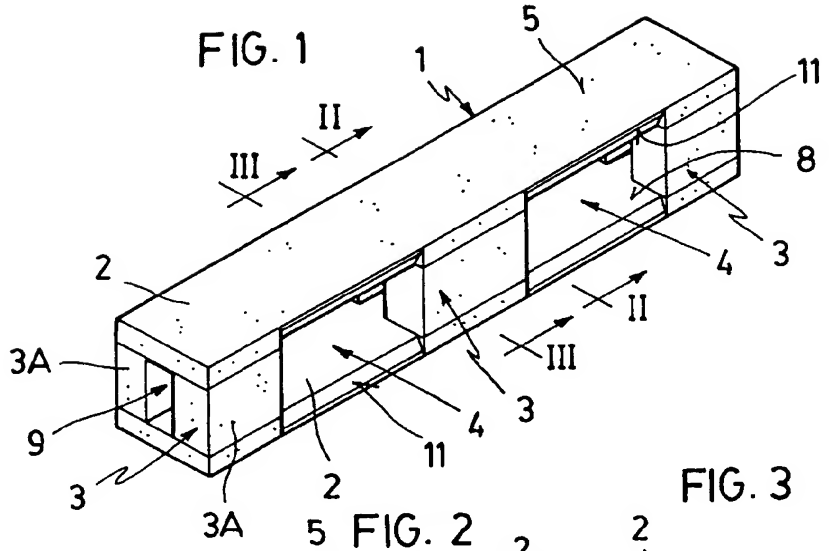


FIG. 2

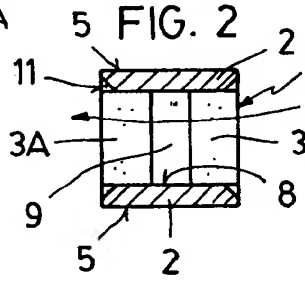


FIG. 3

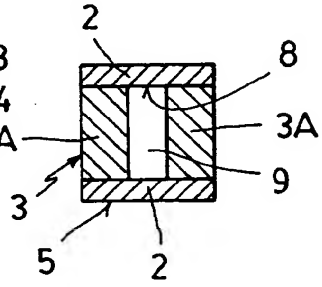


FIG. 4

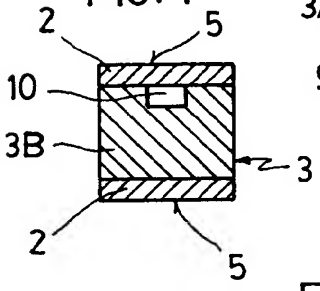


FIG. 6

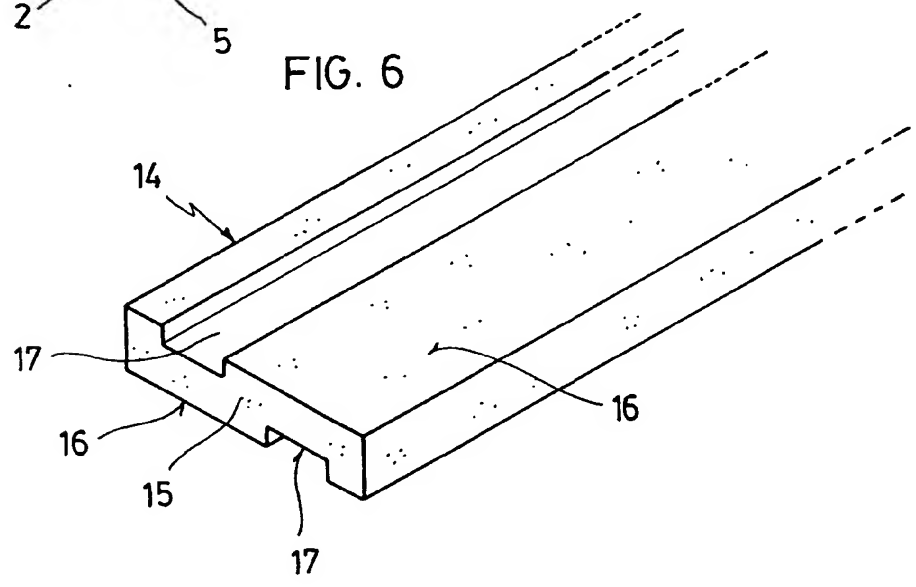


FIG. 5

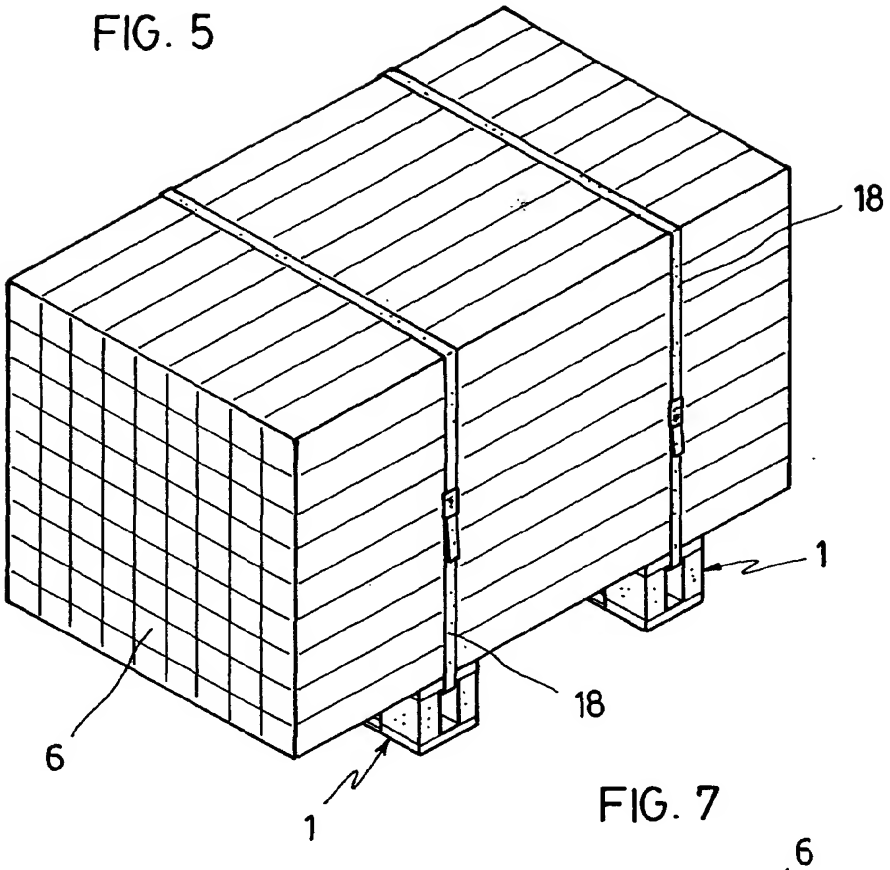


FIG. 7

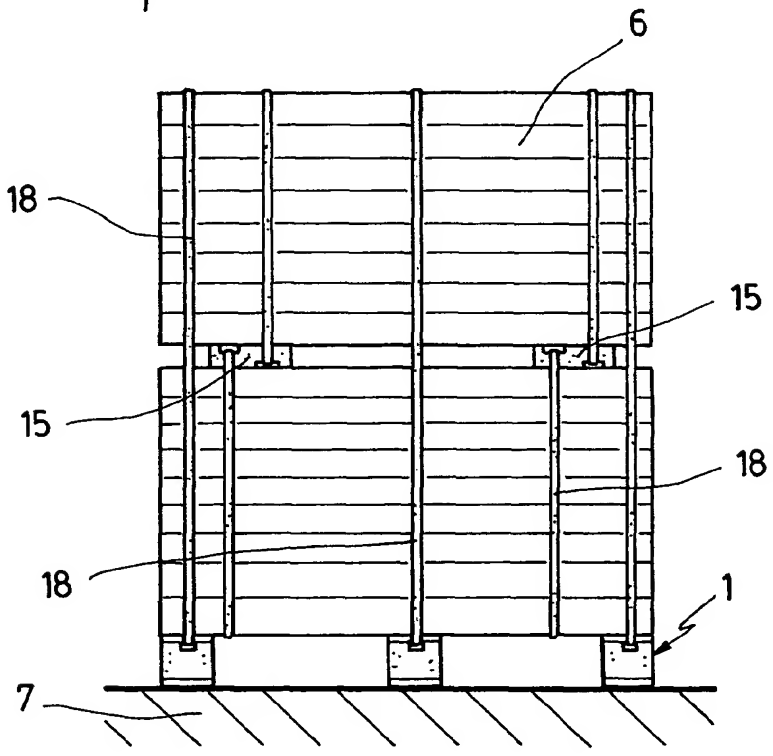


FIG. 8

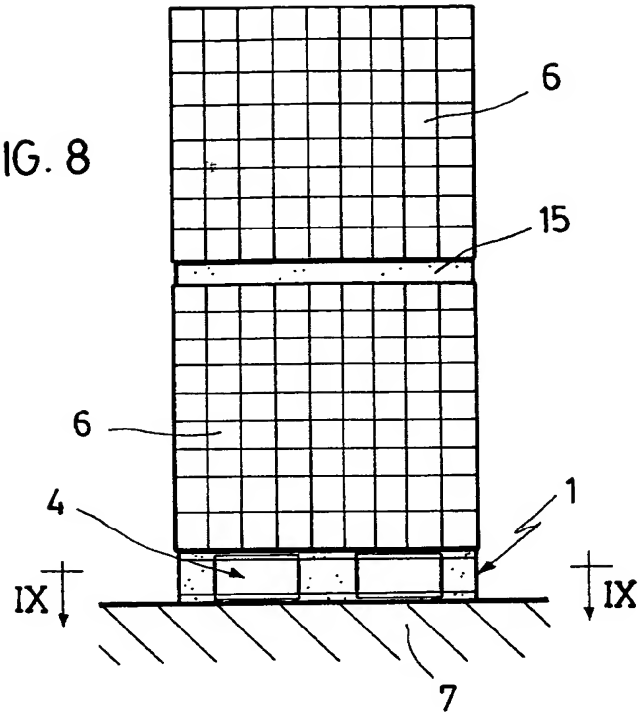
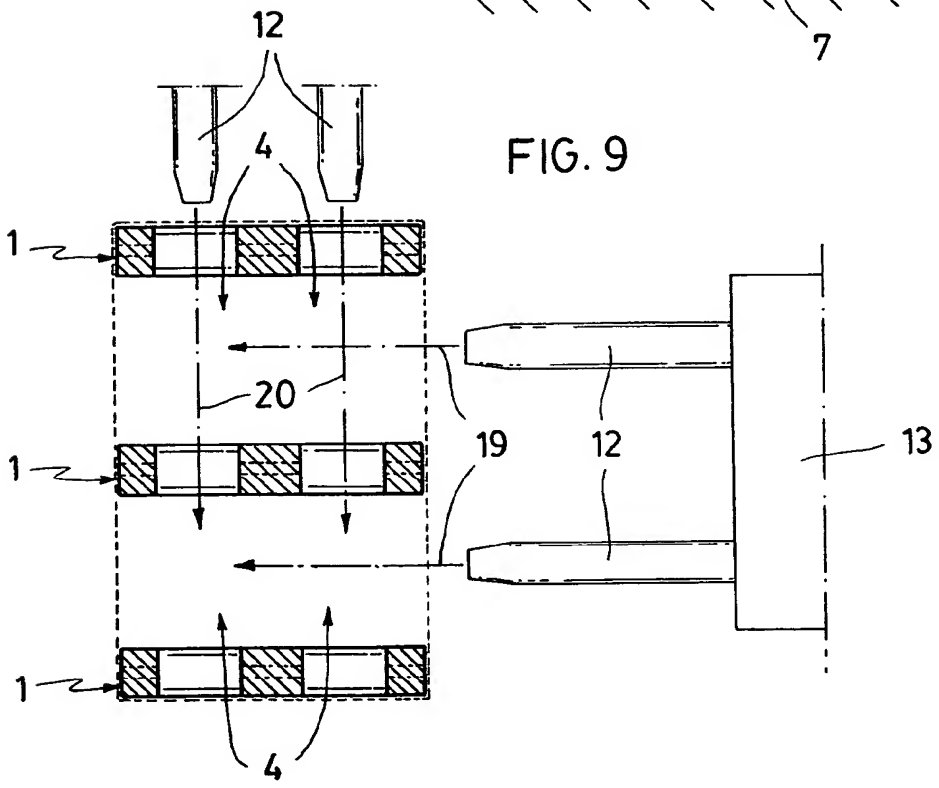


FIG. 9



European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 38 0249

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 2002/129749 A1 (MAYER LEO W ET AL) 19 September 2002 (2002-09-19) * paragraph [0056] * * figure 17 *	1,2	B65D71/00
A	EP 0 881 160 A (THOMAS & BETTS CORP) 2 December 1998 (1998-12-02) * column 4, line 44 - column 5, line 54 * * figures 1-4 *	1	
A	FR 2 758 126 A (SCIERIE BERNARD MERMET) 10 July 1998 (1998-07-10) * page 3, line 17-32 * * figures 2,3 *	1	
A	US 2 895 608 A (WILSON HARRY W) 21 July 1959 (1959-07-21) * column 4, line 9-34 * * figure 1 *	1,6	
A	US 2 730 259 A (FRICK CHESTER A) 10 January 1956 (1956-01-10) * column 3, line 45-53 * * column 5, line 3-28 * * figure 4 *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.7) B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	25 February 2004	Rodriguez Gombau, F

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
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T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

European Patent Office

Application Number
EP 03 38 0249

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☒ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

European Patent Office

LACK OF UNITY OF INVENTION SHEET B

Application Number
EP 03 38 0249

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-5,7

   Palletisation device with at least two through holes in transverse direction and a passage in longitudinal direction.

2. Claims: 1,6

   Auxiliary member.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 03 38 0249

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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25-02-2004

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82